

ACC NR: A13028389

cessary to further investigate the possibilities of this new forming technique. Orig. art.
has: 9 figures, 5 formulas

SUB CODE: W20,14/ SUBM-DATE: none/ ORIG REF: 002

Card 3/3 nst

B. A.

A1-5

Cold-flame and high-temperature oxidation of propane. V. V. Shtern and S. S. Polyak (*C.R. Acad. Sci. U.R.S.S.*, 1949, **65**, 311-314).—The kinetics of the cold-flame and of the high-temp.-oxidation of equimol. C_3H_8 and O_2 mixtures have been investigated. Both processes are represented graphically. In the cold-flame process the principal part of the materials is consumed in the induction period before the flame appears, the products being stable org. mol. (aldehydes, peroxides, acids), CO , CO_2 , and H_2O . The quantities of aldehydes and peroxides present at the rise of the cold flame remain constant after the passage of the flame (or flames). The max. values of the intermediate materials are independent of the pressure. On the extinction of the final cold flame, the oxidation of C_3H_8 proceeds. Peroxides are consumed, CO , CO_2 , and H_2O increase, aldehydes remain constant. Comparison reveals a close resemblance between low-temp. and high-temp. oxidation of C_3H_8 . The consumption of initial materials proceeds until the excess O_2 is consumed. The same intermediate materials are produced. When equal quantities of the initial materials are consumed, the max. quantities of aldehydes and peroxides are produced. From that time to the end of the reaction the max. quantities of aldehydes are maintained constant whilst the peroxides disappear. The reaction is independent of temp.
H. Tylor

C S.S. POLYMER

discrepancy between the initiation of propyl
peroxides. V. V. Mironov and A. B. Ustyan, *Voprosy Kinetiki i Katalizatorov*, No. 3, N.S.R. No. 336 (1968), cf. C.I. 48, Table I.

This character of the reaction between MeCH_2Cl_2 and

O_2 was established, in both the cold-flame (initial temp. 300°, initial pressure 290 mm. Hg) and the upper-temp. range (370°, 225 mm. Hg) by a procedure analogous to that of Smirnov and Tammann (C.I. 38, 2779). At different stages of the reaction, e.g., after the bypass of a known fraction ($\sim 1/2$) of the induction period, or after the extinction of the 1st cold flame, or at a definite stage of the change of pressure, the reacting mixt. was transferred into an intermediate vessel kept at room temp., held there for a definite time and then transferred again into a 2nd reaction vessel where the reaction was allowed to proceed under the same conditions as in the 1st vessel. Restoration of the reaction in the 2nd vessel required times considerably shorter than its initiation in the 1st vessel. This proves that, while chains existing in the 1st vessel are undoubtedly ruptured by the 1st transfer, renewal of the reaction in the 2nd vessel is due to an intermediate product able to survive during the arrest at room temp. That this product is not identical with any of the long-lived free radicals follows from the fact that, under the given conditions, the duration of the reaction resumed in the 2nd vessel is independent of the time of stay of the mixt. in the room-temp. intermediate vessel, even if that time is varied from 80 sec. to 65 hrs.; in all cases, the resumed reaction went on, in the cold-flame and in the upper-temp. range, for 10 and 23 sec., resp. On the basis of analyses of (residual) hydrocarbons at the beginning and at

the end of the rest periods, it can be concluded that their spontaneous decompos. has no effect on the resumption of the reaction in the 2nd vessel, the very short 2nd induction period being independent of the presence or absence of peroxides; likewise, the no. of cold flames arising in the 2nd stage of the cold-flame reaction is independent of the compon. of the peroxides. The intermediate product responsible for the fast resumption of the reaction was identified by isotopic with artificial isotopes made up following analyses of the real mixts. produced in the course of the cold-flame reaction. The only substance that, in an artificial mixt., is capable of bringing about resumption of the reaction from the level at which it was interrupted in the 1st stage, and that is preserved in the reacting mixt. during the rest period, proved to be Acet. N. Thor

39/49T12

USSR/Chemistry - Propene, Oxidation

Chemistry - Oxidation, or Propene

Mar 49

"Cold-Flame and High-Temperature Oxidation of
Propylene," V. Ya. Shtern, S. S. Polyak, Lab.
Flame Processes, Inst Chemicophys, Acad Sci USSR,
4 pp

"Dok Ak Nauk SSSR" Vol LXV, No 3

Cold-flame oxidation is usually considered a
process of oxidizing initial fuel, not down to
final products of reaction, but to stage of stable
intermediate substances such as aldehydes, per-
oxides, or acids. Authors question this repre-
sentation, which disagrees with their data

39/49T12

USER/Chemistry (Contd)

Mar 49

obtained in studying consumption kinetics of
initial products and accumulation of intermediate
and end products of cold-flame oxidation of
equimolecular propylene-oxygen mixture. Submitted
by Acad N. N. Semenov, 15 Jan 49.

39/49T12

RELMAT, S. S.

PA 52/NOTE 8

USSR/Chemistry - Ethylene Chemistry
Chemistry - Oxidation

May 49

"Branch-Degenerate Nature of Propylene Oxidation,"
V. Ya. Shtern, S. S. Poljak, Inst of Geol Sci,
Acad Sci USSR, 4 pp

"Dok Ak Nauk SSSR" Vol LXVI, No 2

Describes experiments to establish branch-degenerate nature of propylene oxidation and identify intermediary product which determines kinetic mechanism of this reaction. First task was solved by a modification of the method of N. N. Semenov and N. Emanuel ("Doklady Akademii Nauk SSSR,"

USSR/Chemistry - Polyethylene Chemistry
(Contd) May 49

Vol XXVIII, p 220, 1940). Second task was solved by experiments with synthetic mixtures. Intermediary product proved to be acetaldehyde. Submitted by Acad N. N. Semenov, 24 Mar 49.

52/NOTE 8
RELMAT

USSR/Chemistry - Reaction Kinetics

Dec 50

"Mechanism of the Oxidation of Propene," S. S. Polyak

"Vest Ak Nauk SSSR" Vol XX, No 12, pp 101,102

Using chem and polarographic analysis (the latter for analyzing mixt of aldehydes and peroxides), an investigation of both cold flame and high temp oxidation was carried out on an equimolar mixt of propene and oxygen. The polarographic method permitted detns with a precision corresponding to concns of 0.0001%. The close similarity between the reaction mechanisms in both temp ranges under investigation was demonstrated; in both cases expenditure of C₃H₆ and O₂ and formation of final products (CO, CO₂, 213T27

H₂O, C₂H₄, and acids) proceeds throughout the extent of the process and ends when O₂ is no longer available. The same intermediate products are formed. The only point of difference is that polymerization of CH₃O takes place in the cold flame range. A chain-radical scheme of oxidation is proposed, with the principal chain reaction proceeding over the radical C₃H₅OC. The latter decomps into CH₂O and an acetic aldehyde radical. "Degenerate" branching occurs as a result of the oxidation of CH₃ COH with the formation of 2 radicals, one of which continues the chain. From this follows a const concn of aldehydes starting with the max reaction rate.

POLYAK, S. S.

213T27

"APPROVED FOR RELEASE: 06/15/2000

CIA-RDP86-00513R001341920017-3

POLYAK, S. S. and SHTERN, V. Ya.

1952. "Mechanism of the Oxidation of Propene," Dokl. AN SSSR, 85, No.1, pp. 161-4,

Translation 14047

APPROVED FOR RELEASE: 06/15/2000

CIA-RDP86-00513R001341920017-3"

polyak ss.

6

Mechanism of oxidation of hydrocarbons in the gas phase.
I. Chemism of cool-flame and high-temperature reactions
of oxidation of propylene. S. S. Polyak and V. Ya. Shtern
(Inst. Chem. Phys., Acad. Sci. USSR, Moscow). *Zhur. Fiz. Khim.*, 27, 34-54 (1953); *c. C. A.* 43, 6208c.—The kinetics of the oxidation of C_3H_6 by O_2 in an equimol. mixt. in the cool-flame and high-temp. regions was studied by means of a described and illustrated vacuum-flow app. In both temp. ranges CH_3CHO , MeCHO , HCOOH , peroxides, C_3H_4 , CO_2 , CO , and H_2O were obtained as intermediate and final products. Aldehydes and peroxides accumulate up to the moment of max. reaction rate; the concn. of aldehydes then remains const., while that of peroxides decreases. The oxidation process is nearly the same in cool-flame and high-temp. regions. J. W. Loveberg, Jr.

POLYAK, S. S.

May 53

USSR/Chemistry - Hydrocarbon
Oxidation

"Mechanism of the Oxidation of Hydrocarbons in the Gaseous Phase. II. The Degenerative-Branched Character of the Oxidation of Propylene," S.S. Polyak and V.Ya. Shtern, Inst of Chem Phys, Acad Sci USSR

Zhur Fiz Khim Vol 27, No 5, pp 631-639

The authors showed the degenerative-branched character of the oxidation of propylene in the cold-flame and upper temperature ranges. Acetaldehyde appeared to be the substance which is responsible for the degenerative branching.

273T17

POLYAK, S. S.

USSR/Chemistry - Kinetics of Combustion Jul 53

"The Mechanism of Hydrocarbons in the Gaseous Phase. III. Radical-Chain Scheme for the Oxidation of Propylene," S. S. Polyak and V. Ya. Shtern, Acad Sci USSR, Inst of Chem Phys, Moscow

Zhur Fiz Khim, Vol 27, No 7, pp 950-959

Proposes a scheme for the radical-chain oxidation of propylene according to which the allyl radical formed in the beginning stages, adds O_2 to become the peroxide radical. The latter decomposes in two ways, i.e., 1) to form formaldehyde and the acetaldehyde radical, and 2) to form H_2O , CO, and

271T11

the C_2H_3 radical. Draws conclusion from scheme regarding constancy of aldehyde yields as found exptly.

POLYAK, S. S.

USSR/Physical Chemistry

Card 1/1

Authors : Polyak, S. S. and Shtern, V. Ya

Title : Regarding the question on the radical-chain process of propylene oxidation.

Periodical : Dokl. AN SSSR 95, 6, 1231 - 1234, 21 Apr 1954

Abstract : About possibilities for determining, theoretically, the final products of radical chain reactions by the formulae of the radical chain reactions. The table given in the article shows comparative figures of CO + CO₂ qualities calculated by a formula and obtained experimentally.

Institution :

Submitted : 10 Feb 1954

POLYAK, S. S.

"Slow Oxidation of Hydrocarbons. Part I - Oxidation of Propylene" from the book Chain Reaction on the Oxidation of Hydrocarbons in a Gaseous Phase, publ. by Inst. of Chem. Physics, AS USSR, 1955, p. 5.

AUTHORS:

Yenikolopyan, N. S., Polyak, S. S., Shtern, V. Ya.

SOV/76-32-9-45/46

TITLE:

On the Nature of the "Cold Flame" Phenomenon (O prirode
kholodnoplamennogo yavleniya)

PERIODICAL:

Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 9, pp 2224-2226
(USSR)

ABSTRACT:

Two views are represented in publications on the oxidation of hydrocarbons in regard to the nature of the "cold flame" phenomenon. M. B. Neyman (Ref 1) explains this phenomenon in terms of the explosive decomposition of organic peroxides, while Pease (Ref 2) and Norrish (Refs 3 and 4) explain it as a result of the thermal instability of the reacting system. The authors suggest a new mechanism. He holds that the peroxide radical reacts in one of two possible ways: either with the initial hydrocarbon ($\text{RO}_2^{\bullet} + \text{RH} \rightarrow \text{ROOH} + \text{R}^{\bullet}$), or through molecular decomposition ($\text{RO}_2^{\bullet} \rightarrow \text{R}'\text{CHO} + \text{R}''\text{O}^{\bullet}$). The second reaction becomes predominant with an increase in temperature. To explain this phenomenon an idea of N. N. Semenov (Ref 5) was used. This is the so-called "degenerated branching": $\text{R}'\text{COH} + \text{RO}_2 \rightarrow$

Card 1/2

On the Nature of the "Cold Flame" Phenomenon

SOV/76-32-9-45/46

→ RO[•] + O[•]H + R'CO[•]. Because of the action of the above-mentioned mechanisms there is a temperature range in which the optimal conditions for "branching" exist. There are 12 references, 8 of which are Soviet.

ASSOCIATION: Akademiya nauk SSSR, Institut khimicheskoy fiziki, Moskva (AS USSR, Moscow Institute of Chemical Physics)

SUBMITTED: January 31, 1958

Card 2/2

POLYAK, S.S.

Classes of conjugated elements of the group of triangular matrices.
Nauk. zap. UzhGU 49:26-45 '62. (MIRA 18:2)

SIMKOVIC, F., inž.; KRALIK, K., inž.; POLYAK, S.

10 years of the use of aluminum in making electric machinery
in the National Enterprise Bratislavské elektrotechnicke zavody,
Bratislava. Elektrotechnik 17 no.7:187-191 J1 '62.

1. Bratislavské elektrotechnicke zavody, Bratislava.

POLI~~A~~K, S. S.

12284* (Radical-Chain Scheme of Propene Oxidation.) K
voprosy o radikal'no-teplom akheme okisleniya propilena.
S. S. Poliak and V. Ya. Shtern. Doklady Akademii Nauk SSSR,
v. 100, no. 6, Apr. 21, 1954, p. 1231-1234.
High-temperature oxidation using C¹⁴ atoms. Tables. 6 ref.

9-24-57
ggp

POLYAK, T.B.

Conference on the economics and organization of textile production.
Izv. vys. ucheb. zav.; tekhn. tekst. prom. n. 3:133-135 '58.
(MIRA 11:7)

(Textile industry--Congresses)

POLYAK, T.B.

Studying labor expenditure according to its application fields
in cotton mills. Izv.vys.ucheb.zav.; tekhn.tekst.prom. no.6:3-10
'62. (MIRA 16:2)

1. Moskovskiy tekstil'nyy institut.
(Cotton manufacture) (Time study)

POLYAK, T.B.

Strengthen the links between economics and production; results of the conference on textile industry economics. Izv.vys.ucheb.zav.; tekhn. tekst.prom. no.1:3-8 '63. (MIRA 16:4)

1. Moskovskiy tekstil'nyy institut.
(Textile industry—Management)

ANDREYEV, Mikhail Aleksandrovich; VOZNESENSKIY, N.N., retsenzent; PETROVA, P.I., retsenzent; POLYAK, T.B., redaktor; LIOZNOV, A.G., redaktor; POPOVA, T.G., tekhnicheskiy redaktor

[Organization and planning of finishing work in the cotton industry]
Organizatsiya i planirovanie otdelochnogo proizvodstva khlebchato-bumazhnoi promyshlennosti. Pod red. T.B.Poliaka. Moskva, Gos. nauchno-tekhn. izd-vo Ministerstva legkoi promyshl. SSSR, 1956. 303 p.
(Cotton finishing) (MLRA 10:3)

LIBERMAN, Abram Moiseyevich, dotsent, kand.ekonom.nauk; POLYAK, T.B.,
dotsent, retsenzent; SEGAL', N.M., red.; KNAKNIN, M.T.,
tekhn.red.

[Labor productivity and calculation of time expended per unit
of production at enterprises of the wool industry] Proiz-
voditel'nost' truda i raschet trudoemkosti produktii na pred-
priatiakh sherstianoi promyshlennosti.. Moskva, Gos.nauchno-
tekhn.izd-vo lit-ry po legkoi promyshlennosti, 1959. 185 p.
(MIRA 13:11)

(Wool industry--Labor productivity) (Time study)

SHVARTSMAN, David Aronovich; POLYAK, T.B., retsezent; KUKUSHKIN, A.I.,
red.; ARKHANGEL'SKIY, S.S., red. [deceased]; MEDVEDEV, L.Ya.,
tekhn.red.

[Organization of rhythmic work in the cotton spinning and
weaving industry] Organizatsiya ritmichnoi raboty v khlopcato-
bunazhnom priadil'no-tkatekom proizvodstve. Pod red. A.I.Kukushkina.
Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po legkoi prom., 1959. 174 p.
(MIRA 12:5)

(Cotton manufacture)

POLYAK T.B.

ZUBCHANINOV, Vladimir Vasil'yevich; POLYAK, T.B., kandidat tekhnicheskikh nauk, re'tsenzent; ZAMAKHOVSKIY, L.P., kandidat tekhnicheskikh nauk, re'tsenzent; GLAZOV, Ya.I., redaktor; LEBEDEV, G.Ye., redaktor; DMITRIYeva, N.I., tekhnicheskiy redaktor.

[Technical and economic analysis of present-day trends in developing cotton spinning and cotton weaving equipment in capitalist countries]
Tekhniko-ekonomicheskii analiz sovremennoykh napravlenii v razvitiu khlopkopriadil'nogo i khlopkotkatakogo oborudovaniia v kapitalisticheskikh stranakh. Pod red. IA.I.Glazova. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po legkoi promyshl., 1957. 142 p. (MIRA 10:11)
(Spinning machinery) (Looms)

POLYAK, T.B., dotsent

Method of correct analysis of the degree of mechanization
and automation in production. Tekst.prom. 22 no.4:14-18 Ap '62.
(MIRA 15:6)

1. Moskovskiy tekstil'nyy institut.
(Textile industry) (Automatic control)

POLYAK, T.B., dozent.

Evaluating labor productivity in the cotton industry. Tekst.prom.
17 no.2:7-10 F '57. (MIRA 10:2)

1. Moskovskiy tekstil'nyy institut.
(Cotton manufacture) (Labor productivity)

POLIYAK T. B., jt. au.

Organization and planning of textile enterprises. Moscow, Sizlappres, 1952-

1. Textile industry and fabrics - Russia. I. Poliak, T.B., jt. au.

POLYAK, T.B., dotsent.

Evaluating labor productivity in the cotton industry. Tekst. prom.
17 no.4:12-16 Ap '57. (MLRA 10:4)

1. Moskovskiy tekstil'nyy institut.
(Cotton manufacture) (Labor productivity)

GORSKOV, Vladimir Alekseyevich; PUSHKIN, P.S., kandidat tekhnicheskikh nauk,
retsenzent; POLYAK, T.B., kandidat tekhnicheskikh nauk, retsenzent;
UTKIN, V.A., retsenzent; PLEMYANIKOV, M.N., redaktor; MEDVEDEV, L.Ya.,
tekhnicheskiy redaktor

[Labor management and production norms in the glass industry] Organiza-
tsiya truda i tekhnicheskoe normirovanie v stekol'nom proizvodstve.
Moskva, Gos. nauchno-tekhn. izd-vo ministerstva promyshlennyykh tovarov
shirokogo potrebleniia SSSR, 1954. 354 p. [Microfilm] (MLRA 8:2)
(Glass manufacture) (Industrial management)

POLYAK, T.B., dotsent.

Economic efficiency of using automatic reeling machines. Tekst.
prom. 16 no.5:12-16 My '56. (MLRA 9:8)

1. Moskovskiy tekstil'nyy institut.
(Cotton manufacture) (Reels (Textile machinery))

POLYAK, T.B.

Simplification and standardization in the management of textile enterprises. Izv. vys. ucheb. zav.; tekhn. tekst. prom. no.3:3-10 '59.
(MIRA 12:11)

1. Moskovskiy tekstil'nyy institut.
(Industrial management)

POLYAK, T.B.; SHKVARTSEV, A.A.

International Colloquium on operational planning held in Czechoslovakia. Izv. vys.ucheb.zav.; tekhn.tekst.prom. no.6:144-145 '61.
(MiRA 15:1)

1. Moskovskiy tekstil'nyy institut
(textile industry)

POLYAK, Teodor Borisovich; ALTUNDZHI, N.V., retsenzent; VIDREVICH,
Ya.V., retsenzent; KOPELEVICH, Ye.I., red.; KNAKNIN, M.T.,
tekhn.red.

[Labor productivity and labor requirements in cotton
manufacture] Proizvoditel'nost' truda i trudoemkost'
izdelii v khlopcchatobumazhnom proizvodstve. Moskva, Izd-vo
nauchno-tekhn.lit-ry RSPSR, 1960. 188 p.

(MIRA 14:4)

(Cotton manufacture--Labor productivity) (Time study)

POLYAK, T.V.

BELIKHOV, Aleksey Vasil'yevich; POLYAK, T.V., retsenzent; KOPELEVICH,
Ye.I., redaktor; EL'KINA, E.M., tekhnicheskiy redaktor

[Methods for analysing the accomplishment of the planned rates
of output] Metody analiza vypolneniya norm vyrabotki. Moskva,
Gos.nauchno-tekhn.izd-vo Ministerstva promyshl.tovarov shirokogo
potrebleniia SSSR, 1955. 150 p. (MLRA 8:10)
(Time study) (Textile industry)

POLYAK, V., COL LT.

Pg. 173T1

USSR/Aeronautics - Radio
Navigation Sep 49

"Radio Navigation in Soviet Aviation," Lt Col V.
Polyak, Engr

"Vest Vozdush Flota" No 9, pp 8-13

Development of radio and application to aerial
navigation in USSR from time of Popov. Claims
priorities in instr landing of heavy bomber
(1932), phasometric method for location of air-
craft, cir radio navigation system, hyperbolic
phase system, etc.

ZIN

173T1

Polyak, V. E.

AID P - 2638

Subject : USSR/Medicine

Card 1/1 Pub. 37 - 15/22

Author : Polyak, V. E., Sanitary Inspector

Title : A case from experience of lighting blackboards in schools

Periodical : Gig. i san., 8, 52, Ag 1955

Abstract : Describes observations made in Tashkent schools on fatigue of children's eyes, and gives recommendations for the lighting of blackboards.

Institution : Tashkent Medical and Epidemiological Station

Submitted : Ja 15, 1955

POLYAK, V.M., brigadir.

Signal lamp device for testing the condition of soldered points in an electric motor. Energotik 3 no.5:16-17 O '53.

(MLRA 6:10)

(Electric motors)

POLYAK, V.

AID P - 1853

Subject : USSR/Aeronautics

Card 1/1 Pub. 135 -14/18

Author : Polyak, V., Dotsent, Kand. of Tech. Sci.

Title : Textbook on aircraft navigation. (Samoletovozhdeniye. Uchebnoye Posobiye. 1955)

Periodical : Vest. voz. flota, 4, 74-78, Ap 1955

Abstract : This is a review of a new textbook on aircraft navigation written by Gorshkov, M. F., Kudryavtsev, N. F., Kunitskiy, R. V., and Torgman, A. I. The book was printed in 1955 and is said to be adapted for high speed aircraft navigation. The reviewer point out at some errors.

Institution: None

Submitted : No date

1. POLYAK, V. M.
2. USSR (600)
4. Safety Appliances
7. Automatic safety device for an eccentric press for the prevention of injury., Sel'khozmashina, No. 12, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

1. POLYAK, V. M.
2. USSR (600)
4. Power Presses
7. Automatic safety device for an excentric press for the prevention of injury.
Sel'khozmashina no. 12, 1952.
9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

VAKHURKIN, V.M.; GLADSHTEYN, L.I.; KARMILOV, S.S.; KLIMOV, S.A.;
LEVITANSKIY, I.V.; MALININ, B.N.; NOSOV, A.K.; PAL'M,
Yu.A.; POLYAK, V.S.; POPOV, G.D.; RASSUDOV, V.M.;
KRASYUKOV, V.P.; SOKOLOV, A.G.; Prinimali uchastiye:
GORBATSKIY, Ye.I.; MATVEYEV, S.S.; STRELETSKIY, N.S.,
prof., zetsenzent; MUKHANOV, K.K., dots., retsenzent;
BOLOTINA, A.V., red.; MIKHEYEVA, A.A., tekhn. red.

[Light-weight supporting metal structures] Oblegchennye
nesushchie metallicheskie konstruktsii. Moskva, Gos-
stroizdat, 1963. 282 p. (MIRA 17:2)

POLYAK, V.Ye.; SAL'VITSKAYA, N.V.

Precautionary sanitary inspection in the reclamation of the
Golodnaya Steppe. Med.shur.Uzb. no.6:73-74 Je '58.
(MIRA 13:6)

1. Iz Tashkentskoy gorodskoy sanitarno-epidemiologicheskoy
stantsii i sanitarno-epidemiologicheskogo upravleniya Mini-
sterstva zdravookhraneniya UzSSR.
(GOLODNAYA STEPPE--RECLAMATION OF LAND--HYGIENIC ASPECTS)

ZARETSKAYA, G.B.; POLI~~A~~K, V.~~E~~.

"Preventive hygienic supervision of the planning and construction
of Soviet cities and the provision of public facilities" by K.G.
Beriushev. Reviewed by G.B. Zaretskaya, V.E. Poliak. Gig. i san. 24
no. 4:90-92 Ap '59.
(SANITATION)

POLYAK, V.Ye.

Problems in hygiene and sanitation treated in "Zdravookhranenie Tadzhikistana," Gig. i san. no. 10:108-109 o '60. (MIRA 13:12)
(TAJIKISTAN--PUBLIC HEALTH--PERIODICALS)

POLYAK, V.Ye.; TURIKOVA, Z.A.; KIRYUKHINA, A.A.

Hygienic rating of atmospheric conditions inside the auditoriums of
winter motion-picture theaters during the summer in southern Russia.
Gig. i san. 23 no. 12:75-76 D '58. (MIRA 12:1)
(MOTION-PICTURE THEATERS--HYGIENIC ASPECTS)

POLYAK, V.Ye.

Microclimate of Tashkent motion-picture theaters in summer. Gig. i
(MIRA 13:1)
san. 24 no.9:80 S '59.

1. Iz Tashkentskoy gorodskoy sanitarno-epidemiologicheskoy stantsii.
(TASHKENT--MOTION-PICTURE THEATERS--HYGIENIC ASPECTS)

POLYAK, V.Ye., sanitarnyy vrach

Some ~~data~~ on the condition of the air in medical establishments
in Shchelkovo. Gig. i san. 26 no.7:82-83 Jl '61. (MIRA 15:6)

1. Iz Shchelkovskoy sanitarno-epidemiologicheskoy stantsii.
(AIR--MICROBIOLOGY) (HOSPITALS--HYGIENE)

POLYAK, V.Ye., sanitarnyy vrach

Development of standards and rules for the construction of rural localities. Gig. i san. 24 no.10:68-69 '59. (MIRA 13:1)

1. Iz Shchelkovskoy sanitarno-epidemiologicheskoy stantsii Moskovskoy oblasti.
(RURAL HEALTH)

POLYAK, V.Ye., sanitarnyy vrach

Problems in hygiene and sanitation in "Meditinskii zhurnal
Uzbekistana." Gig. i san. 25 no. 5:107-109 My '60.

(MIRA 13:10)

1. Iz Shchelkovskoy sanitarno-epidemiologicheskoy stantsii.
(UZBEKISTAN--PUBLIC HEALTH--PERIODICALS)

POLYAK, V.Ye., sanitarnyy vrach; BAKHTEYEVA, A.S., biolog

Mycological studies in barbershops. Gig.i san. 25 no.11:69 N '60.
(MIRA 14:1)

1. Iz Shchelkovskoy sanitarno-epidemiologicheskoy stantsii Moskovskoy
oblasti.

(HAIRCUTTING--HYGIENIC ASPECTS)

(DERMATOMYCOSIS)

POLYAK, V.Ye., sanitarnyy vrach

From the practice of lighting a blackboard. Gig. i san. no.8:
52 Ag '55. (MLRA 8:10)

1. Iz sanitarno-epidemiologicheskoy staatsii Tashkenta.
(BLACKBOARDS) (SCHOOL HOUSES--LIGHTING)

POLYAK, V.Yu., kandidat tekhnicheskikh nauk.

New means of air navigation. Ves.tVozd.F1. 39 no.6:41-43 Je '56.
(MIRA 9:11)

(Navigation (Aeronautics))

AID P - 5568

Subject : USSR/Aeronautics - air navigation
Card 1/1 Pub. 135 - 7/27
Author : Polyak, V. Yu., Cand. of tech. sci.
Title : New means of air navigation
Periodical : Vest. vozd. flota, 6, 41-43, Je 1956
Abstract : The principle of "Inertial Navigator", a device of air navigation, and how to use it in flight, is given in this article. Two diagrams.
Institution : None
Submitted : No date

GOLYAK, V. Yu.

Eshche o radionavigatsii na vodushnykh liniakh. More on radio navigation on the air lines
(Grazhdan skait aviaciiia, 1939, no. 3, p. 25-31). BM: T2504.37

SC: Soviet Transportation and Communication, A Bibliography, Library Congress,
Reference Department, Washington, 1952, Unclassified.

MNUSHKIN, A.S., prof.; POLYAK, Ye.I., kand.med.nauk (Tashkent)

Some features of the etiology and clinical picture of liver cirrhosis.
Klin.med. 37 no.10:84-89 0 '59. (MIRA 13:2)

1. Iz terapeuticheskoy kliniki (zaveduyushchiy - prof. A.S. Mnushkin)
Tashkentskogo instituta usovershenstvovaniya vrachey.
(LIVER CIRRHOSIS)

BURYKH, Ye.B.; D'YAKOVICH, M.V.; KOLOBOVA, M.I. [deceased]; KOLOBOV, V.M.; KONOVALOVA, K.A.; POPOLEVSKIN, V.I.; SKOTHIKOV, Yu.A.; TIKHONOVICH, S.S.; SHIROVALOV, T.I. Prinimali uchastiye YUN'YEVA, N.P.; POLYAK, Ye.V.; SULTANOVA, N., red.; YAKOVLEVA, Ye., tekhn.red.

[Memorable places in Moscow Province; a concise guidebook] Pamatnye mestta Moskovskoi oblasti; kratkii putevoditel'. Izd.3., dop. i perer. Sost. E.B. Burykh i dr. Moskva, Mosk.rabochii, 1960. 734 p. (MIRA 14:2)

1. Moscow. Oblastnoy krayevedcheskiy muzey. 2. Zamestitel' predsedatelya Moskovskogo oblastnogo obshchestva krayevedeniya (for Konovalova).

(Moscow Province--Guidebooks)

POLYAK, Ye. Z.

X-ray data on the motor- and evacuatory function of the gall bladder in patients following a stomach resection. Terap.arkh. 33 no.8:77-81 '61. (MIRA 15:1)

1. Iz kafedry rentgenologii i radiologii (zav. - dotsent I.A. Kunin) Stalinskogo meditsinskogo instituta v oblastnoy klinicheskoy bol'nitse imeni M.I. Kalinina (glavnnyy vrach V.F. Zubko).
(STOMACH-SURGERY) (GALL BLADDER-RADIOGRAPHY)

POLYAK, Ya.Z. (Stalino)

Motor function of the gall bladder in patients with gastric
cancer. Klin.med. 39 no.4:115-117 '61. (MIRA 14:4)

1. Iz kafedry rentgenologii i radiologii (zav. - dotsent I.A.
Kunin) Stalinskogo meditsinskogo instituta (dir. -- dotsent
A.M. Ganishkin) i oblastnoy klinicheskoy bol'nitsy imeni M.I.
Kalinina (glavnnyy vrach I.N. Golub).
(STOMACH--CANCER) (GALL BLADDER)

POLYAK, Ye.Z.

Motor function of the gallbladder in healthy subjects. Vest. rent.
i rad. 35 no. 5:8-12 S-0 '60. (MIRA 13:12)

1. Iz kafedry rentgenologii i radiologii (zav. - dotsent I.A. Kunin) Stalinskogo meditsinskogo instituta (dir. - dotsent A.M. Ganichkin).

(GALL BLADDER)

...PCIV-N... i...v... m...vi... med... nauk

Involvement of the biliary tract in peptic ulcer. Trudy I-go
JGIM 36:131-145 '65.
(MERA 18:9)

POLYAK, Ye.Z., kand. med. nauk

Methodology for measuring the volume of the contents of the gallbladder. Trudy L.-go RVI 39:222-231 '65. (MIRA 18:9)

L 45213-65 EPF(c)/E R/EWG(j)/EWT(z)/EWP(i)/EWP(b)/FCC/T/ENP(z)
ACCESSION NR: AP5009116 Ps-4 IJP(s) WW/WI 8/0166/65/000/001/0038/0040

Pr-4/
3
31
B

AUTHOR: Azimov, S. A.

Polyak, Yu. V.; Abdullayev, R. S.

TITLE: Investigation of the fraction of the energy transferred to the soft component by particles interacting with carbon nuclei

SOURCE: UN UzSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, no. 1, 1965,
38-40

TOPIC TAGS: electron photon component, cosmic ray shower, graphite, secondary
particle energy

ABSTRACT: Experimental results are presented of the measurement of the soft-component graphite obtained using a large number of ionization chambers placed between layers of a dense absorber. The particle energy was obtained by a calorimetric method (N. L. Rigorov et al., ZNETT v. 34, 506, 1958). The thickness of the absorber in which the electron-nuclear shower took place exceeded 5 t-units for the nuclear interaction, so that the energy of the primary particles could be determined with sufficient reliability. For 75 selected cases in which particles with energy larger than 100 GeV interacted in the graphite, the average coe-

Card 1/2

L 45213-65

ACCESSION NR: AP5009146

ficient of the soft component was 0.30 ± 0.04 . This large value shows that when particles interact with light nuclei the processes accompanied by considerable transfer of energy to the electron-photon (soft) component are quite appreciable. Orig. art. has: 1 figure.

ASSOCIATION: Institut vladernoy fiziki AN UzSSR (Institute of Nuclear Physics, AN UzSSR)

SUBMITTED: 22Jan64

ENCL: 00

SUB CODE: NP

MR HEP Sov: 002

OTHER: 000

303
Card 2/2

L 4470-66 EWT(1)/EWP(e)/EWT(m)/EWP(i)/FCC/T/EWP(d)/EWA(h)/EWA(e)-2 WH/GW/WH

ACC NR: AP5024627

SOURCE CODE: UR/0048/65/029/009/1664/1666

32
B

AUTHOR: Azimov, S.A.; Abdullayev, R.S.; Polyak, Yu.V.

ORG: none

19

TITLE: Investigation of the inelasticity in interactions of particles with carbon nuclei /Report, All-Union Conference on Cosmic Ray Physics held at Apatity 24-31 August 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 9, 1965, 1664-1666

TOPIC TAGS: primary cosmic ray, secondary cosmic ray, nucleon interaction, high energy particle, inelastic interaction, particle production

ABSTRACT: The authors have measured the average inelasticity of interactions of nuclear active cosmic ray particles with carbon nuclei by means of an ionization calorimeter of which the main body consisted of 7 slabs of graphite and associated ionization chambers. The total thickness of graphite amounted to about 5 nuclear interaction mean free paths. Cosmic ray particles unaccompanied by electron-photon showers and interacting in the first graphite slab were selected by three appropriately located counter trays. The data for 70 nuclear-active particles with energies above 100 BeV were averaged and are presented as a plot of relative energy evolved versus depth in the ionization calorimeter. Theoretical curves calculated for different assumed

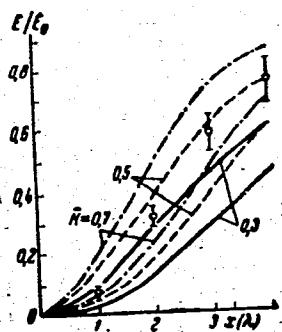
Card 1/2

09010327

L 4470-60

ACC NR: AP5024627

values of the inelasticity are given on the same plot. The experimental points lie between the theoretical curves for inelasticities 0.5 and 0.7. Orig. art. has: 3 figures.



Calculated inelasticities

SUB CODE: NP/ SUBM DATE: 00/ ORIG REF: 002/ OTH REF: 000

OC
Card 2/2

AZIMOV, S.A., akademik; POLYAK, Yu.V.; ABDULLAEV, R.S.

Studying the inelasticity coefficient in the interaction of
particles with carbon nuclei. Dokl. AN Uz. FSK 21 no. 111
pp.19 '64.

U. Institut gosudarstvennoy fiziki AN UzSSR. F. Akademika nauk UzSSR
(for Azimov). Submitted Sept. 8, 1964.

AZIMOV, S.A.; POLYAK, Yu.V.; ARDULLAYEV, R.S.

Determining the fraction of energy transmitted to the soft component by particles interacting with carbon nuclei.

Izv. AN Uz. SSR. Ser. fiz.-mat. nauk 9 no.1:38-40 '65.

(MIRA 18:6)

1. Insti·ut yadernoy fiziki AN UzSSR.

L 59407-65 EWG(j)/EMT(i)/FCC/T IJP(c)

ACCESSION NR: AR5015974

UR/0058/65/000/005/V046/V047

15
B

SOURCE: Ref. zh. Fizika, Abs. 5V350

AUTHORS: Azimov, S. A.; Polyak, Yu. V.; Abdullayev, R. S.

TITLE: Investigation of the coefficient of inelasticity in interactions between particles and carbon nuclei

CITED SOURCE: Dokl. AN SSSR, no. 11, 1964

TOPIC TAGS: inelasticity, coefficient, cosmic ray particle, carbon nucleus, nuclear interaction, electron nuclear shower, nuclear active particle, ionization calorimeter

TRANSLATION: The authors determine the coefficient of inelasticity (K) in an interaction between fast cosmic-ray particles and carbon nuclei. The measurement of K is based on the variation with depth of the energy of the electron-nuclear shower which develops in a thick block of matter. The measuring apparatus constitutes an ionization calorimeter, consisting of rows of ionization chambers interleaved with graphite filters. The first row

Card 1/2

L 59407-65

ACCESSION NR: AR50159/4

D

select the events in which a single nuclear-active particle passes through the apparatus. The ionization chambers of the second row and the hodoscopic counters of the third row register the active interaction in the first layer, while the remaining rows of the ionization chambers measure the distribution of the ionization in the apparatus. The total thickness of graphite in the apparatus is ~ 5 nuclear interaction ranges. The installation registered events in which the ionization released in the substance correspond to an electron-nuclear shower energy $E_0 > 80$ BeV. Some 70 interactions between a single nuclear-active particle with energy larger than 100 BeV were selected for the analysis. For each interaction there was constructed the distribution of the ionization in the substance, after which the individual distributions were reduced to a single energy and averaged. From the averaged distribution one determines the dependence of the energy release in the substance on the depth of the absorber. The experimental curves were compared with calculated for different values of K. The data obtained indicate that the average value of the inelasticity coefficient is $K = 0.5--0.7$. Ya. M.

SUB CODE: NP

ENCL: 00

KC
Card 2/2

L 59106-65 EWA(h)/EWT(.)/EWT(m) Peh DIAAP

ACCESSION NR: AR501590

UR/0058/65/000/005/A027/A027

2/
3

SOURCE: Ref. zh. Fizik, Abs. 5A235

AUTHORS: Azimov, S. A. Polyak, Yu. V.; Abdullayev, R. S.

TITLE: Pulse-height analyzer for the registration of rare events

CITED SOURCE: Dokl. AN UzSSR, no. 12, 1964, 13-15

TOPIC TAGS: pulse height analyzer, Geiger Mueller counter, ionization chamber, nuclear interaction, cosmic ray particle

TRANSLATION: A description is presented of a pulse-height analyzer intended for simultaneous registration of pulses of a large number of ionization chambers and G. M. counters. The analyzer consists of individual amplification channels and channels for the transformation of the pulses obtained from the corresponding ionization chambers, as well as common control and registration circuits. Each channel of the analyzer is assembled in the form of an individual block, mounted on a common rack by means of a connection plug. The registration is effected by photo-

Card 1/2

L 59406-65

ACCESSION NR: AR5015970

O
graphing the glowing neon lamps on moving motion picture film. The time of glow of each neon lamp depends on the ionization in the corresponding ionization chamber. The installation operates only in those cases when the total ionization in the chambers exceeds a specified value. The process of registration lasts 6 seconds and is effected by means of a relay circuit in the control block. A block diagram of the analyzer and a schematic diagram of an individual channel are given. The described experiments on the nuclear interactions between cosmic-ray particles of high and ultrahigh energy. L. S.

SUB CODE: NP

ENCL: 00

MC
Card 2/2

L 40704-65 EPF(c)/EPR/LG(j)/EWT(m)/EWP(i)/FCC/T/EWP(b)/EWP(e) Pr..4/Ps-4 IJP(c)
WH/NW
ACCESSION NR: AP501231

UR/0048/64/028/011/1776/1777

41
40
B

AUTHOR: Azimov, S. A.;

Polyak, Yu. V.; Abdullayev, R. S.

19

TITLE: Amount of energy transmitted to the soft component by particles interacting with carbon nuclei. [Report of All-Union Meeting on Cosmic Rays Physics, held in Moscow from October 4 to 10, 1963.]

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 28, no. 11, 1964, 1776-1777

TOPIC TAGS: particle interaction, nucleus, nuclear particle, nuclear energy, hodoscope, ion chamber

ABSTRACT: Measurements were conducted at the mountain station of the Uzbek Academy of Sciences. The station is 3170 meters above sea level. The apparatus was operated for 600 hours. It consisted of 11 series of ionization chambers (150 in all) and three series of hodoscope counters (240 in all) placed between layers of graphite lead and iron. Each counter was connected to an individual amplifier. All energy yields of more than 100 Bev were recorded. The average transfer to the electron-photon component was determined to be 0.29 ± 0.06 .
Orig. art. has: 1 figure and 1 graph.

Card 1/2

L 40704-65

ACCESSION NR: AP501231

ASSOCIATION: Institut
yadernoy fiziki Akademii nauk UzSSR (Institute of Nuclear
Physics, Academy of Sci
ences UzSSR)

SUBMITTED: OO

ENCL: OO

SUB CODE: NP

NO REF SOV: OOO

OTHER: OOO

JPRS

Card 2/2 MB

POLYAK, Yuriy [Kolkhoz "Seybit" Kalinkovichskogo rayona]

We are grateful to you, dear Samuilauna. Rab.i s al.
37 no.7:8-9 Jl '61. (MIRA 15:2)
(Kalinkovichi District--Dairying)

YELEONSKIY, V.M. (Sverdlovsk); POLYAK, Yu.Ya. (Sverdlovsk)

Heating of electrons in a moving plasma. PMTF no.5248-51 S-0
(MIRA 16:1)
'62. (Plasma (Ionized gases)) (Electrons)

POLYAK, Yuriy [Poliaak, Iuryi]

A village in the Pripyat Valley. Rab.1 sial. 38 no.5:18 My
'62. (MIRA 16:1)
(Pripyat Valley—Rural libraries)

POLYAK, Yuriy

Nadezia Belaia, an agronomist. Rab. i sial. 36 no.11:10-11 N
'60. (MIRA 13:11)

1. Kolkhoz "Iskra," derevnya Navinki, Kalinkovitskogo rayona.
(Kalinkovichi District—Women as farmers)

POLYAK, Yuriy [Poliak, Iuryi]

A proud woman; a sketch. Rab. i sial. 34 no. 11:9-10 N '58.
(MIRA 11:12)
(Kalinkovichi District--Dairying)

POLYAK, Yuri [Poliak, Iury.]

~~Springtime on collective farms; a sketch. Rab. i sial. 35 no.4-15-16~~
Ap '59. (MIRA 12:12)

1.Kolkhoz "Peramoga", Kalinkavitskiy rayon.
(Kalinkovichi District--Women as farmers)

POLYAK, Yu.

The right track. Rab. i sial. 39 no.8:6-7 Ag '63. (MIRA 16:9)

1. Kalinkovichskiy proizvodstvennoye upravleniye.

L 15635-65 EWT(1)/EWG(k)/EPA(sp)-2/EPA(w)-2/EEC(t)/T/EEC(b)-2/EWA(m)-2 Pz-6/
Po-4/Pab-10/Pi-4 ASI-3/ESD-3/AFWL/SSD/IJP(c)/ESD(t)/ESD(gs)/RAEM(c)/AEDC(a)/
SSD/BSD/AFWL/ASD(f)-2/ASD(p)-3/AFETR/RAEM(a) AT

ACCESSION NR: AP404398

S/0089/64/017/002/0141/0142

AUTHOR: Yeleoneksiy, V. M.; Polyak, Yu. Ya.

TITLE: Conductivity of a turbulent plasma in the magnetohydrodynamic approximation

SOURCE: Atomnaya energiya, v. 17, no. 2, 1964, 141-142

TOPIC TAGS: turbulent plasma conductivity, magnetohydrodynamics, plasma dielectric permittivity, plasma inhomogeneity

ABSTRACT: The authors theoretically investigate the effect of plasma motion on its conductivity in the presence of random inhomogeneities. C. Herring's method (J. Appl. Phys. 31, 1931, 1960) permits, in the magnetodynamic approximation, the evaluation of the parameters, which determine the interaction of the flux with the magnetic field, on the macroscopic plasma conductivity in a given turbulent state. The Reynolds and Hartmann spectral numbers appear in the parameters. The same method permits the determination of the tensor of dielectric permittivity in a medium with given turbulence properties. Orig. art. has: 8 equations.

ASSOCIATION: None

Cord 1/2

"APPROVED FOR RELEASE: 06/15/2000

CIA-RDP86-00513R001341920017-3

L 15635-65
ACCESSION NR: AP4043985
SUBMITTED: 15Apr63
SUB CODE: MS

NO REP SOV: 000

O
ENCL: 00

OTHER: 002

Card 2/2

APPROVED FOR RELEASE: 06/15/2000

CIA-RDP86-00513R001341920017-3"

POLYAK, Yu.Ya.; YELLEONSKIY, V.M.

Effect of collisions on the excitation spectrum of a system of
electrons. Zhur. eksp. i teor. fiz. 45 no.2:159-163 Ag '63.
(MIRA 16:9)

1. Ural'skiy filial AN SSSR.
(Collisions (Nuclear physics)) (Electrons--Spectra)

POLYAK, YU.YA. (Sverdlovsk)

"Conductivity of a non-homogeneous plasma to a magnetohydrodynamic approximation"

Report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow 29 Jan - 5 Feb 64.

I-10077-63 EWT(B) BDS--AFFTC/ASD
ACCESSION NR: AR3001344

S/0058/63/000/004/A033/A033

54

SOURCE: Rzh. Fiziki, Abs. 4A285

AUTHOR: Azimov, S. I.; Abdullayev, R. S.; Kratenko, Yu. P.; Polyak, Yu. V.

TITLE: Multichannel pulse-height analyzer to operate with a large number of ionization chambers

10

CITED SOURCE: Dokl. AN UzSSR, no. 8, 1961, 13-17

TOPIC TAGS: Pulse height analyzer, ionization hodoscope, optical recording

TRANSLATION: A multichannel pulse height analyzer is described, intended to operate with a large number of ionization chambers and permitting simultaneous ionization measurements to be made with each. The analyzer consists of a large number of independent sections of identical construction, the number of which is equal to the number of ionization chambers. Each section is a separate pulse height analyzer, consisting of a preamplifier, a main amplifier, amplitude-time converter, and a coincidence circuit. The voltage pulses from the ionization

Card 1/2

, S. A.; ABDULLAYEV, A. M.; MYALKOVSKIY, A.M.; YULDASHBAYEV, T. S.; POLY.

Investigation of Inelasticity of Interactions of Cosmic Ray Particles with Fe and C
Nuclei in 10¹¹ 10¹²ev Energy Region.

Report submitted for the 8th Intl. Conf. on Cosmic Rays (IUPAP) Jaipur, India,
2-14 Dec 1963.

24.6600

L5L22
8/058/63/000/001/047/120
A160/A101

AUTHORS: Azimov, S. A., Abdullayev, R. S., Kochetkov, G. A., Kratenko, Yu. P.,
Polyak, Yu. V., Pryakhin, Ye. A.

TITLE: The interaction of nucleoactive particles with an energy of
 $\geq 2 \cdot 10^{11}$ ev - with lead nuclei

PERIODICAL: Referativnyy zhurnal, Fizika, no. 1, 1963, 33, abstract 1V220
("Dokl. Akad. UzSSR", no. 1, 1962, 9 - 13, summary in Uzbek)

TEXT: An investigation was carried out of the interaction of nucleoactive particles with an energy of more than $2 \cdot 10^{11}$ ev with lead nuclei at a height of 3160 m above sea level with the help of an installation consisting of hodoscopic counters and ten rows of ionization pulse chambers between which absorber layers were placed. It was established that the mean value of the coefficient K_{π^0} which characterizes the part of the energy transmitted to the π^0 -mesons by the nucleoactive particles during the collision equals $K_{\pi^0} = 0.31 \pm 0.02$. An analysis carried out of the effect of the avalanches resulting from the secondary interactions revealed that the secondary interactions do not contribute an essential error in

Card 1/2

85959

11414, 1395, 1482, 1162

S/126/60/010/005/001/030
E032/E414AUTHORS: Izyumov, Yu.A. and Polyak, Yu.Ya.TITLE: The s - d Exchange Interaction, and Resonance in
Ferromagnetic MetalsPERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol.10, No.5,
pp.641-649

TEXT: The properties of ferromagnetic metals and alloys of transition elements indicate that their magnetic properties are in the first instance associated with electrons in unfilled shells of atoms with uncompensated spins. The exchange interaction between these electrons and conduction electrons, i.e. the so-called s - d exchange interaction, has an important effect on their collective properties in a crystal. Vonsovskiy et al (Ref.2 and 3) have shown that when the interaction with conduction electrons is taken into account, there appear two branches of spin waves. In a further paper (Ref.3) these workers investigated the damping of spin waves during their interaction with conduction electrons. This analysis is continued in the present paper with

Card 1/4

85959
S/126/60/010/005/001/030
E032/E414

The s - d Exchange Interaction, and Resonance in Ferromagnetic Metals

special emphasis on the theory of ferromagnetic resonance. In the first part of the paper the complex magnetic susceptibility of a transition ferromagnetic metal is calculated as a function of the frequency of the external magnetic field. The Hamiltonian employed is that used by Vonsovskiy and Turov (Ref.4) and is given by Eq.(1.1) of the present paper. It consists of six terms. The first term contains the energy of a conduction electron E_k corresponding to a quasi-momentum k , and the Fermi creation and annihilation operators $a_{k\sigma}$ and $a_{k\sigma}^\dagger$. The second term represents the exchange energy of d-electrons, and the third and fourth terms the Zeeman energy of d- and s-electrons in a magnetic field. The last two terms give the s - d exchange operator. These two terms include the s - d exchange interval $J(k_1 k_2)$. The Hamiltonian is used to calculate the susceptibility on the molecular field approximation and also by the methods of perturbation theory. It is shown that in the case of specimens whose dimensions are smaller than the depth of the skin layer, in Card 2/4

85959

S/126/60/010/005/001/030
E032/E414

The s - d Exchange Interaction, and Resonance in Ferromagnetic Metals

energy of two conduction electrons with the same quasi-momentum but different spin directions differs by $2sJ(kk)$. There are 9 references: 6 Soviet and 3 Non-Soviet.

ASSOCIATION: Institut fiziki metallov AN SSSR
(Institute of Physics of Metals AS USSR)

SUBMITTED: May 26, 1960

Card 4/4

85959
S/126/60/010/005/001/030
E032/E414

The s - d Exchange Interaction, and Resonance in Ferromagnetic Metals

which case the field may be looked upon as uniform, the absorption of field quanta corresponds to the creation of spin waves with zero quasi-momentum, and the exchange interaction between conduction electrons and electrons in spin unsaturated layers of the metal does not lead to a shift in the resonance frequency or the broadening of the absorption line. The expression for the magnetic susceptibility obtained by perturbation methods is the same as that obtained on the molecular field approximation with s - d exchange interaction taken into account. The magnetic susceptibility is proportional to the total magnetization of the metal, and the latter consists of two components, namely the magnetization of the d-electrons and the magnetization of the conduction electrons. The fact that the s - d exchange interaction in this case does not lead to broadening of the resonance line is due to the "magnetization" of conduction electrons by a system of spontaneously ordered d-electrons. As a result of this, the

Card 3/4

IZYUMOV, Yu.A.; POLYAK, Yu.Ya.

s - d-exchange interaction and the ferromagnetic resonance in metals.
Fiz. met. i metalloved. 10 no.5:641-649 N '60. (MIRA 14:1)

1. Institut fiziki metallov AN SSSR.
(Metals--Magnetic properties)

POLYAK, Yu. Ya.

3/20/60/132/04/17/064
B014/B007

AUTHORS:

Бородин, С. Р., Corresponding Member of the AS USSR,
Бородин, А. А., Инженер, Тю. А., Инженер, В. В.
Полак, Ю. Я.

TITLE:

Exchange Interaction of Inner and Outer Electrons in transition Metals

PUBLICATION:

Doklady Akademii Nauk SSSR, 1960, Vol. 126, No. 4, pp. 797-800

TEXT: In the electron spectrum of metallic crystals which are composed of clusters of the transition group and of the rare earth group, peculiar properties are observed compared to the crystals of other metals. This is brought into connection with the d- and f-electrons of the valence shell. The electron density of the transition metals is divided into three regions. The first is near the nucleus, the second contains the valence electrons and the third intermediate region consists of the electrons of the nonvalence shell. For this system the Hamiltonian (1) is written down. The present paper describes the influence exerted by the nondiagonal terms in (1) upon the development of the exchange coupling, i.e., on the

Exchange Interaction of Inner and Outer Electrons in Transition Metals

3/20/60/132/04/17/064
B014/B007

spectrum of the d- and s-electrons. For this purpose the authors used the statistical Green function developed by F. J. Boninsegni and S. V. Tyablikov (Ref. 7). The development of the distribution functions of the boson and Fermi particles is dealt with in detail, and formulas (11) and (12) are obtained. As turned out in the course of a further investigation, the exchange interaction between the outer and inner electrons leads to an exchange coupling between the inner electrons. This may be seen from formulas (16) and (19). This interaction has the character of a ferromagnetic coupling. It is a direct effect of the inner electrons on the outer electrons. This leads to ferromagnetism. Indirect interaction by conduction does not change the energy spectrum of the spin waves. Ref. 4, T. Kubo, Po-Pi Chiu, T. Shih, and D. M. Gubarev are mentioned. There are 9 references, 6 of which are Soviet.

ASSOCIATION: Institute of Physics of the Academy of Sciences, USSR; Institute of General Physics of the University of Moscow (USSR); Institute of Mathematics of the University of Moscow (USSR); Institute of Physics of the Academy of Sciences, USSR; Institute of Mathematics of the University of Moscow (USSR)

Exchange Interaction of Inner and Outer Electrons 3/20/60/132/04/17/064
in Transition Metals
B014/B007

SUBMITTED: February 9, 1960

✓C

AVERSHIN, S.G.; POLYK, Z.I., redaktor.

[Shifting of rocks in underground mining] Sdvishenie gornykh porod
pri podzemnykh razrabotkakh. Moskva, Ugletekhnizdat, 1947. 244 p.
(Subsidence (Earth movements)) (MLRA 7:7)

POLYAK, Z. I.

~~BLOMIA, YLVO MIY MTTTMMVION~~

N/5
661.1
.B6

MARKSHEYDERSKOYE DELO /SURVEYING IN MINES, BY/ Y. Y. LADA, Z. I.
POLYAK I YA. Z. RUMYKOVSKIY. MUSKVA, GEOTEKHNIKA, 1956.

671 p. ILLUS., DIAGRS, GRAPHS, TABLE. "LITERATURA": P. 668-669

POLYAK, Z.

Pozdění

(I.), POLYAK (Z.), & BLATTNÝ (O.). Влияние летней посадки Картофеля, пораженного вирусными заболеваниями, на улучшение состояния его здоровья. [The influence of summer planting of Potato, infected with virus diseases, on the improvement of its state of health.]—За соц. сельскохоз. Науки, Сер. А [Socialist. agric. Sci., (Czechoslovakia), Ser. A], 3, 2, pp. 160-169, 1954.

In field trials in Czechoslovakia progenies from summer-sown (July, 1951) potato crops infected with potato virus Y [R.A.M., 33, p. 552] planted in April, 1952, showed a significant disease reduction, 5.8 per cent. (Erstling) [Duke of York] and 2.9 (Triumph) less than in the progenies from spring-sown crops, virus symptoms being much weaker in 1952.

POLYAK, Yu, V., Engr —

"An Investigation of the Principles for the Distribution of the Charges and Currents Which Produce Given Electromagnetic Fields." Cand Tech Sci, Moscow Order of Lenin Power Engineering Inst imeni V. M. Molotov, 4 February 1955. (WM, 24 Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

SOV-109-5-6-6/27

AUTHORS: Polyak, Yu. V. and Kel'zon, V. S.

TITLE: Theory of the Detection of Periodic Signals in Gaussian Noise during Non-Coherent Storage (Integration)
(K teorii obnaruzheniya periodicheskikh impul'snykh signalov v gaussovom shume pri nekogerentnom nakoplenii)

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol 3, Nr 6,
pp 764-769 (USSR)

ABSTRACT: It is assumed that the fluctuation noise at the r.f. output of a narrow band receiver can be expressed as Eq.(1) where U_{noise} is the instantaneous value of the noise voltage, E_{envelope} is the envelope, ω_0 is the resonant frequency of the system, and φ is the initial phase. If the desired signal is in the form expressed by Eq.(2), the resulting signal at the receiver can be expressed as:

$$U_{\text{noise}} = E_{\text{envelope}} \cos(\omega_0 t + \theta) \quad , \quad (3)$$

where E_{envelope} is the envelope of the resulting waveform and θ is the combined phase of the waveform. The probability density distribution for the envelope is given by Eq.(4).

Card 1/5

SOV-109-3-6-6/27

Theory of the Detection of Periodic Signals in Gaussian Noise during Non-Coherent Storage

where $v_i = \frac{E_{CW}}{\sigma}$, $a = \frac{E}{\sigma}$, and σ is the standard deviation of the noise.

square value of the noise. In the absence of the desired signal, the probability of the appearance of a pulse is expressed by Eq.(5), while the probability of the detection of a pulse in the presence of the signal is expressed by Eq.(6). Both equations are valid for the system without storage or averaging facilities and v_o represents the triggering level of the output device of the receiver. If the receiver stores N pulses the respective probabilities can be expressed by:

$$P_w = \int_{v_o}^{\infty} \varphi_{wif}(z) dz ; \quad (7)$$

$$P_c = \int_{v_o}^{\infty} \varphi_{c,wif}(z) dz ; \quad (8)$$

Card 2/5

SOV-109-3-6-6/27

Theory of the Detection of Periodic Signals in Gaussian Noise during Non-Coherent Storage

where $\varphi_w(z)$ is the probability density distribution for the sum of N random variables and $\varphi_{cw}(z)$ is the probability density distribution for the sum of N signal-noise variables. If the receiver has a square detector, the problem can be analysed by finding the distribution density of a quantity:

$$\sum_{n=1}^N v_n^2 \quad (9)$$

where: $v^2 = v_1^2 + v_2^2 + \dots + v_N^2$; $v^2 = x$; $v_1^2 = x_1, \dots;$

$x = x_1 + x_2 + \dots + x_N$. The distribution function for x is then (Ref.3) in the form of Eq.(10). For $N < 50$ the probabilities P_c and P_w are then expressed by Eqs.(14), while for $N > 50$, P_w and P_c are in the form of Eqs.(15). In the case of a receiver fitted with a linear

Card 3/5